Light-Patterned RNA Interference of 3D-Cultured Human Embryonic Stem Cells.

Journal: Adv Mater

Publication Year: 2016

Authors: Xiao Huang, Qirui Hu, Yifan Lai, Demosthenes P Morales, Dennis O Clegg, Norbert O Reich

PubMed link: 27787919

Funding Grants: Stem cell based treatment strategy for Age-related Macular Degeneration (AMD), Stem cell based treatment strategy for Age-related Macular Degeneration (AMD), Phase 1 Safety Assessment of CPCB-RPE1, hESC-derived RPE Cell Coated Parylene Membrane Implants, in Patients with Advanced Dry Age Related Macular Degeneration

Public Summary:
n/a

Scientific Abstract:
A new method of spatially controlled gene regulation in 3D-cultured human embryonic stem cells is developed using hollow gold nanoshells (HGNs) and near-infrared (NIR) light. Targeted cell(s) are discriminated from neighboring cell(s) by focusing NIR light emitted from a two-photon microscope. Irradiation of cells that have internalized HGNs releases surface attached siRNAs and leads to concomitant gene downregulation.